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Getz

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[54] **EXTINGUISHER CHARGING SYSTEM**

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[52] **U.S. Cl.** **141/83;** 141/104; 141/286; 141/311

[51] **Int. Cl.** **B65b 3/28**

[58] **Field of Search** 141/59, 286, 311, 392, 141/83, 206, 100, 104, 102, 101, 103, 109, 106, 107

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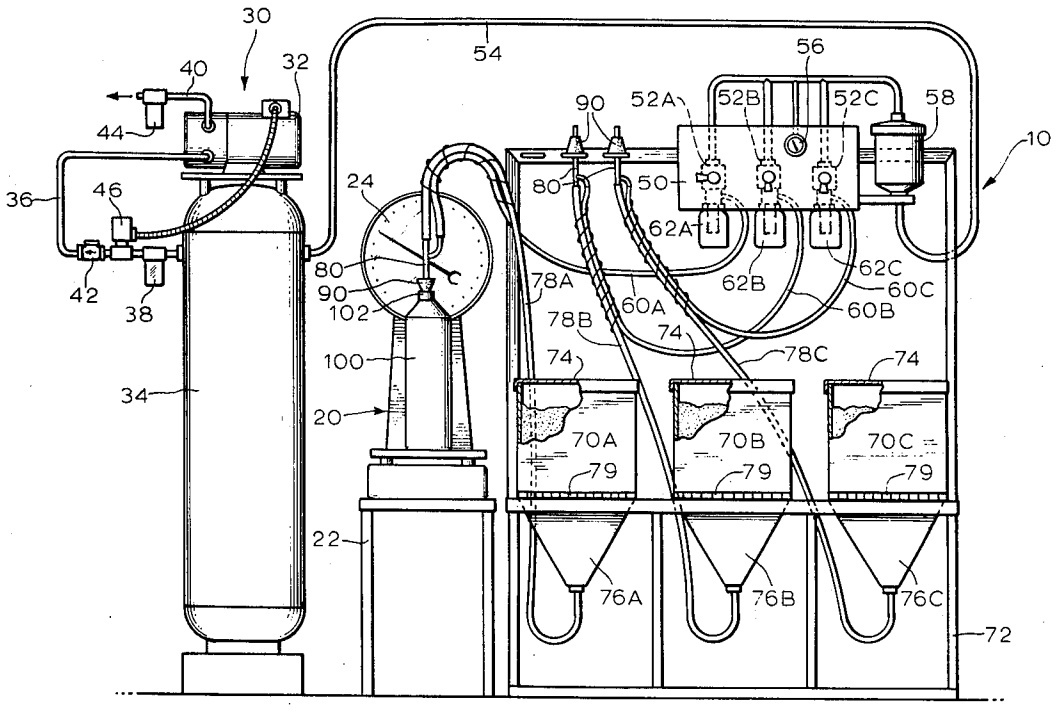
Primary Examiner—Houston S. Bell, Jr.

[57] **ABSTRACT**

A system for vacuum-filling fire extinguishers with a measured charge of discrete fire-retardant material. The system includes a vacuum source and vacuum control means, and one or more reservoirs of fire retardant material. A vacuum and filling conduit means selectively connect the vacuum control means and each reservoir with the extinguisher to be filled, and coupling and sealing means joins said conduit means to the extinguisher in a sealed relationship. Filtering means are also provided to filter the fire-retardant material from the vacuum system.

9 Claims, 4 Drawing Figures



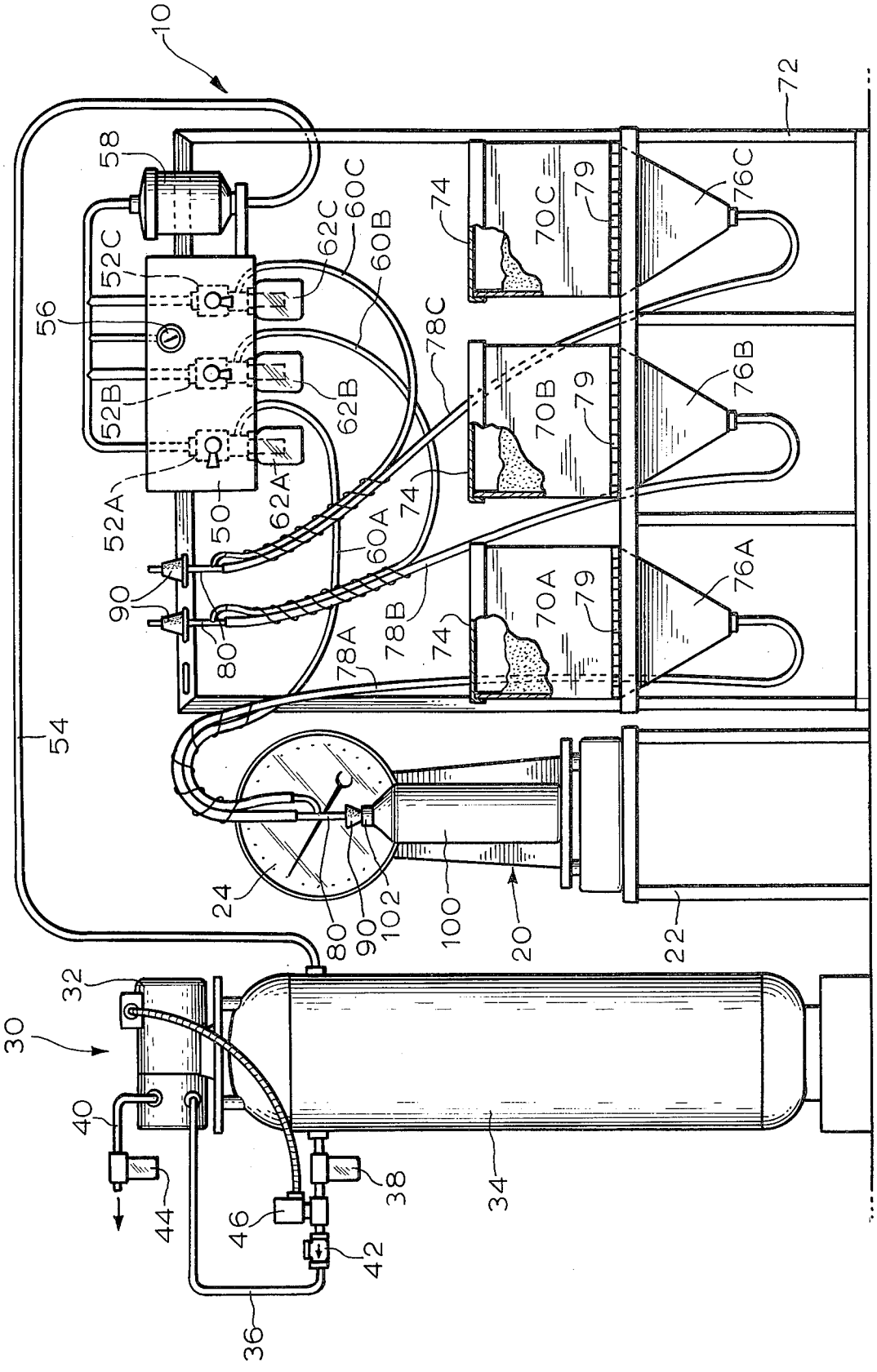

10
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FIG. 1

FIG. 2

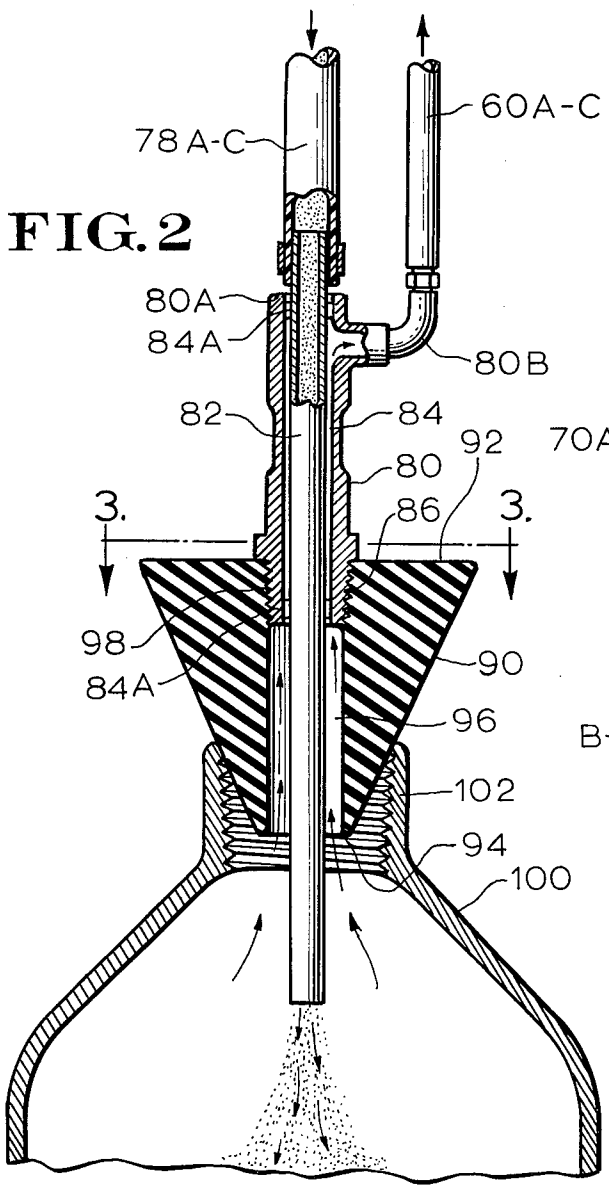
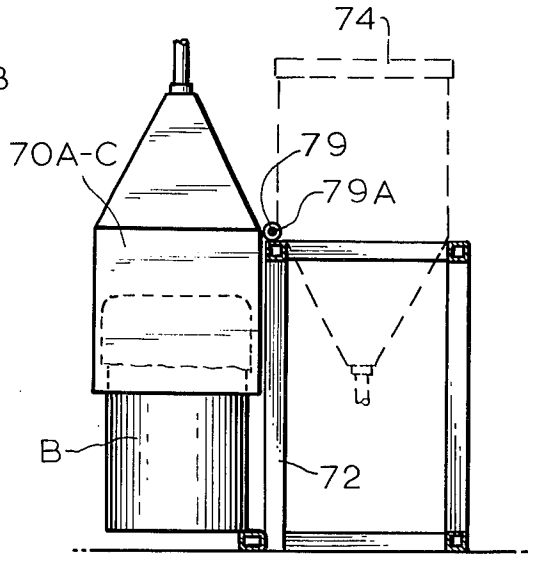


FIG. 4



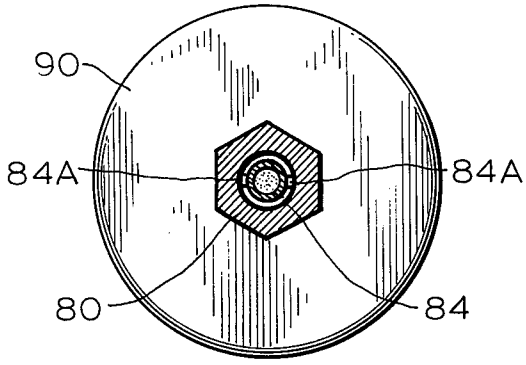


FIG. 3

EXTINGUISHER CHARGING SYSTEM

BACKGROUND AND GENERAL DESCRIPTION

This invention relates to a system for vacuum-filling fire extinguishers with powdered fire-retardant materials.

As well-known in the fire-prevention field, standard cylindrical fire extinguishers must be recharged periodically with fresh fire-retardant materials, to maintain the extinguishers in an operative condition. Recharging obviously is also necessary after each extensive use of the extinguisher. Due to these requirements, a substantial industry has developed for providing fire extinguisher users with extinguisher recharging service.

The extinguisher recharging techniques that have been standard in the industry are generally slow, cumbersome and inefficient, and result in substantial labor costs. Generally, the standard recharging is to fill a host of various-sized extinguishers with the desired fire-retardant powder manually through the open orifice provided at the top of the extinguisher. Scoops and funnels are usually employed in an effort to minimize spillage of the powder and speed-up the charging process. These prior techniques have met with only partial success.

Accordingly, the principal purpose of this invention is to provide an improved vacuum-filling system for recharging fire extinguishers which substantially minimizes the labor and time needed to fill a variety of different-sized extinguishers with a selected type of fire-retardant powder. The system in accordance with this invention also substantially reduces the loss of materials during the recharging operation, by providing a closed system for controlling the material flow.

Briefly described, the system in accordance with this invention utilizes a partial vacuum force to fill empty fire extinguisher cylinders with a measured charge of discrete fire retardant material. The system includes a station for receiving an empty and open extinguisher to be recharged. In the preferred arrangement, the station includes a scale for measuring the weight of the material introduced into the extinguisher. A vacuum system including a source of vacuum and a control valve between an opened and a closed position is also provided. One or more reservoirs is included to store the material to be charged into the extinguishers. Vacuum and filling conduit means having movable ends are joined to the vacuum control valve and reservoir respectively. Coupling and sealing means are provided to join the movable ends of the conduit means in sealed relationship to the different-sized orifices of a plurality of extinguishers. Filter means are also provided to filter and collect the material to avoid contamination of the vacuum system. In accordance with this invention the system is arranged so that selective movement of the control valve from a closed to an open position with the conduits secured within a fire extinguisher, draws a partial vacuum within the extinguisher through the vacuum conduit and thereby creates a pressure differential which rapidly draws the fire-retardant material from the reservoir into the extinguisher. In the preferred arrangement the system is provided with a plurality of vacuum and filling conduits which are adapted to feed a plurality of different fire-retardant materials selectively into the fire extinguisher being charged.

Further objects and features of the present invention will become more apparent from the following description of an embodiment thereof, taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a plan view of the system for vacuum-filling fire extinguishers in accordance with this invention;

FIG. 2 is an enlarged partial sectional view of the interface between the vacuum-filling system and a fire extinguisher to be filled;

FIG. 3 is a cross-sectional view of the coupling and sealing means included in the system, as viewed along the line 3—3 in FIG. 2; and

FIG. 4 is an end view of the material reservoirs included in the filling system, illustrating the manner in which the reservoirs are filled;

The vacuum filling system in accordance with this invention is generally indicated in the drawings by the reference numeral **10.** The system **10** is designed to rapidly charge empty fire extinguishers, such as an extinguisher **100,** by creating a partial vacuum force within the extinguisher which causes firesuppressant powder to be drawn rapidly into the evacuated extinguisher within a matter of seconds. Moreover, the system **10** can be used with a variety of extinguishers **100,** which include inlet orifices **102** of varying diameters. In addition, the preferred embodiment of the filling system **10** in accordance with this invention is adapted to selectively fill the fire extinguisher **100** with any one of a plurality of fire retardant powders, such as the standard BC powder, Purple K powder, or ABC powder, in one simple and quick operation.

As seen in FIG. **1,** the system **10** includes an extinguisher filling station **20.** Station **20** includes a suitable stand **22** and an extinguisher weighing scale **24.** The extinguishers **100** to be filled are placed on the scale **24** at the station **20** during the filling operation. The scale **24** registers the empty weight of the extinguisher **100,** and is utilized during the filling operation to measure the amount of powdered fire-suppressant material being charged into the empty extinguisher. The scale **24** therefore provides a ready measurement, by weight, of the amount of material charged into the extinguisher **100,** and provides indicia which informs the operator of the system **10** when the extinguisher **100** has been completely filled.

The system **10** further includes a vacuum system **30** for creating a partial vacuum within the extinguisher **100,** to initiate the extinguisher filling operation. As seen in FIG. **1,** the vacuum system **30** includes the vaccum pump **32** mounted on top of a vacuum storage tank **34.** A suction line **36,** including an air filter **38,** connects the storage tank **34** to the inlet side of the pump **32.** Similarly, an exhaust line **40** connects the outlet side of the pump **32** to the atmosphere through an air filter and muffler **44.** The pump **32** is operated automatically through a suitable electrical power source (not shown) by means of a vacuum switch **46.** The vacuum switch **46** is of standard construction, and is placed in the suction line **36** between the tank **34** and the pump **32.** The switch **46** is adapted to energize the pump **32** periodically, to maintain a selective level of vacuum pressure within the vacuum storage tank **34.** In the preferred embodiment, the switch **46** is set to energize the pump **32** when the vacuum level within the storage tank **34** falls to 14 inches of water vacuum pressure, and to de-energize the pump **32** after the tank **34** has been restored to 20 inches of water vacuum pressure. A one-way check valve **42** of standard construction is provided in the suction line **36** between the vac-

cum switch **46** and the pump **32** to maintain the vacuum pressure within the tank **34.** Thus, the vacuum system **30** provides the filling system **10** with a constantly-available source of vacuum pressure within the 14 to 20 inch vacuum pressure range.

The vacuum system **30** also includes a manual vacuum control console **50.** As seen in FIG. **1,** the control console **50** incorporates a plurality of vacuum control valves **52** A–C. The valves **52** A–C are manually movable between a closed position (as shown by valves **52** B and C) and an opened position (as shown by the valve **52** A) to initiate the operation of the filling system **10.** A vacuum line **54** connects the inlet side of the valves **52** A–C to the vacuum storage tank **34.** A vacuum gauge **56** is provided in the line **54** to provide the operator with a readily available indication of the level of vacuum pressure existing in the vacuum system **30.** An air filter **58** is provided in the line **54** for filtering out small particles of the powdered fire-suppressant material which may enter the vacuum system, during the filling operation, to avoid contamination of the vacuum storage tank **34** and damage to the vacuum pump **32.** It has been found that a suitable filter **58** is a combination cloth and paper tank-type filter, such as available from Gast Manufacturing Co. of Benton Harbor, Mich. under model No. 80V460.

The vacuum system **30** also includes a plurality of suction conduits **60** A–C connected to the outlet side of the control valves **52** A–C, respectively. The suction conduits **60** A–C include movable ends which permit the conduits to be connected to the extinguisher **100** during the filling operation. Each of the conduits **60** A–C are connected to one of the valves **52** A–C through a filter and collector device **62** A–C. The filters **62** A–C are adapted to filter and collect large particles of the fire-suppressant material which may be drawn into the suction conduits **60** A–C due to the operation of the vacuum-filling system **10.** It has been found that a fiber jar-type filter, such as model AB609 by Gast Manufacturing Co. of Benton Harbor, Mich., is suitable as the filters 62 A–C, **44** and **38.** Thus, the filters **62** A–C, combined with the filter **58,** protect the vacuum system **30** from contamination by either small or large particles of the powdered material being charged into the extinguishers **100** during the operation of the system in accordance with this invention.

The filling system **10** also includes components which house a readily available supply of fire-suppressant material to be charged into the extinguishers **100** during the filling operation. The system **10** thus is provided with a plurality of material storage reservoirs **70** A–C. As seen in FIG. **1,** each of the reservoirs **70** A–C is pivotally mounted upon a suitable frame structure **72** in a position adjacent the filling station **20.** Each of the reservoirs **70** A–C includes a removable cover plate **74,** to contain the powdered material within the reservoirs during the operation of the system. The covers **74** can be removed from the reservoirs to fill the reservoirs **70** A–C with a supply of the material to be employed in the system **10.** The lower ends of the reservoirs **70** A–C define conical discharge hoppers **76** A–C. The hoppers **76** A–C assist the gravity-feed of the powdered material from the reservoirs **70** A–C during the filling operation. Filling conduits **78** A–C are connected to the lower ends of each of the hoppers **76** A–C, and have movable ends adapted to direct the material from each of the reservoirs **78** A–C into the extinguisher **100.**

The use of a plurality of reservoirs **70** A–C provides the system **10** with versatility, by permitting the system to be used to fill the extinguishers **100** with a variety of fire-suppressant materials, such as ABC powder, Purple K powder, or the standard BC powder, by supplying each reservoir **70** A–C with a different type of powder. In addition, the reservoir lids **74** can be color-coded to simplify the identification of the different types of powders used in the system **10.**

As seen in FIGS. **1** and **4** in the preferred arrangement the reservoirs **70** A–C include a hinge **79** between the reservoirs and the supporting frame structure **72.** The hinge **79** has a removable hinge pin **79A,** and is designed to facilitate the charging of the powdery fire-suppressant material into each of the reservoirs **70** A–C. The construction of the hinge **79** permits the reservoirs **70** A–C to be removed from the frame **72** and telescoped over an open barrel B of powdered material. Then, as shown in FIG. **4,** the hinge pin **79A** can be replaced, and the barrel B and the associated reservoir **70** A–C can be easily pivoted about the hinge into the upright position shown in FIG. **1.** The inverted barrel B will then be emptied into the reservoir **70** A–C, and the cover **74** replaced. The telescoping of the barrel B within the reservoir prevents spillage of the powder from the barrel during the charging of the reservoirs **70** A–C.

The system **10** further includes a mechanism for coupling the movable ends of the filling conduits **78** A–C and the suction conduits **60** A–C together for insertion into the open orifice **102** of the fire extinguisher **100** to be filled. A sealing device is also provided to cooperate with the coupling mechanism, to temporarily seal the orifice of the extinguisher **100,** during the vacuum-filling operation. Accordingly, as seen in FIGS. **1** and **2,** the system **10** includes a plurality of pipe unions **80** which each couple one of the suction conduits **60** A–C to one of the filling conduits **78** A–C. The unions **80** include a material branch **80A** and suction branch **80B.** One of the filling conduits **78** A–C is connected to the material branch **80A** of each union in a sealed relationship. As seen in FIG. **2,** each branch **80A** includes an elongate material sleeve **82** which extends upwardly into the associated filling conduit **78** A–C and downwardly through the union **80** into the interior of the extinguisher **100.** In addition, the sleeve **82** operates in conjunction with union **80** to define an annular vacuum path **84,** surrounding the sleeve **82** within the union. Spacers **84A** maintain this annular path open. As seen in FIG. **2,** the vacuum path **84** is in fluid communication with the suction branch **80B** of the union **80.** The union **80** thereby defines separate parallel flow passages for the vacuum flow and material flow during the operation of the filling system. The suction union **80B** is connected, in an air-tight relationship, to one of the suction conduits **60** A–C. The lower portion of the union **80** also includes external threads **86,** or other suitable fastening means.

The system **10** in accordance with this invention further includes a sealing plug **90** for joining the union **80** to a fire extinguisher **100** in a sealed relationship with respect to the orifice **102.** As shown in FIGS. **2** and **3,** the sealing plug **90** is conical in configuration, and is constructed from a flexible material, such as an elastomer, which provides a resilient outer sealing surface for the plug. The plug **90** has a major base diameter **92** and a minor base diameter **94** which are selected so that the

plug **90** will engage, in a sealing relationship, with a plurality of different-sized extinguisher orifices **102.** This arrangement is accomplished by selecting the minor diameter **94** to be smaller than the anticipated minimum diameter of the extinguisher orifice **102** and by further selecting the major diameter **92** to be larger than the maximum anticipated diameter for the extinguisher orifice **102.** In practice it has been found that a major plug diameter **92** of approximately 3½ inches, and a minor plug diameter **94** of approximately ¾ inches will adapt the plug **90** for sealing within the orifice **102** of a plurality of conventional extinguishers **100** which are encountered in the field.

As clearly seen in FIG. **2,** the axis of the conical plug **90** is provided with a bore **96.** The upper portion of the bore **96** includes internal threads **98** which mate with the external threads **96** on the union **80,** to seal the plug **90** in a fluid-tight arrangement with the union **80.** The bore **96** receives the sleeve **82,** and also defines an annular path around the sleeve **82** which connects with the vacuum line **60** A–C through the annular path **84** and the suction branch **80**B. The plug bore **96** thereby provides paths for the entry of the material from one of the conduits **78** A–C into the extinguisher **100** through the sleeve and for evacuating the interior of the extinguisher **100** through the suction branch **80**B.

The operation of the system **10** in accordance with this invention is apparent from the above description. As explained above, the vacuum system **30** operates automatically, through the vacuum switch **46,** to maintain a selected vacuum pressure level within the vacuum tank **34.** Accordingly, the extinguisher filling operation is started by placing an empty extinguisher **100** on the scale **24** at the filling station **20.** Then, the operator of the system **10** selects the type of fire-suppressant material which is to be drawn into the extinguisher **100** from the variety of materials provided in a separate material reservoir **70** A–C. Assuming that the material contained within **70**A is to be charged into the extinguisher **100,** the operator then inserts the associated plug **90** and union **80** into the orifice **102** of the extinguisher **100.** The interface between the extinguisher orifice **102** and plug **90** in this filling position is fully illustrated in FIG. **2.** Next, the operator manually moves the control valve **52**A from the closed position to the opened position, thereby coupling the suction conduit **60**A to the vacuum system **30.** Upon opening of the control valve **52**A, the vacuum pressure within the vacuum system **30** creates a vacuum force to the interior of the extinguisher **100** through the line **60**A, the suction branch **80**B of the union **80,** and the annular path **84.** As illustrated by the arrows in FIG. **2,** the air entrained within the extinguisher **100** is thereby evacuated from the extinguisher **100** along an upward flow path through the bore **96** in the plug **90.** The creation of a vacuum pressure in the interior of the extinguisher **100** also assists in sealing the extinguisher **100** by creating a differetial pressure which draws the plug **90** forcefully downward into firm sealing engagement with the circular orifice **102.**

The evacuation of the extinguisher **100** by operation of the vacuum system **30** creates a differential pressure between the extinguisher **100** and the atmosphere which operates to drawn the powdered fire retardant or suppressant material into the extinguisher from the connected material reservoir **70**A through the filling conduit **78**A. The arrangement of the reservoir **70**A and the associated hopper **76**A assists the movement of the material from the reservoir **70**A by directing the material to the conduit **78**A by the force of gravity. The material flows from the reservoir **70**A through the filling conduit **78**A and the sleeve **82** into the fire extinguisher **100.** The extension of the sleeve **82** through the plug bore **96,** and into the interior of the extinguisher **100** minimizes the introduction of the powdered material into the vacuum system **30** during the operation of the system **10.** The operator holds the control valve **52**A open until the scale **24** indicates that the selected amount (e.g., 10 pounds) of material has been charged into the extinguisher **100.**

During the operation of the system **10,** the air evacuated from the cylinder **100** by the vacuum system **30,** including a small amount of entrained powdered material is drawn toward the vacuum system **30** by the negative pressure in the conduit **60**A. This air with the entrained material, is passed through the filter **62**A so that all larger particles of the material are collected in the filter **62**A before the air reaches the valve **52**A. The filter **62**A is emptied periodically, and the material collected therein is returned to the associated material reservoir **70**A. The returning evacuated air from the conduit **60**A is filtered a second time by the tank filter **58,** to remove any finer material particles before the air is returned to the vacuum storage tank **34.** The dual filtering by the filters **62**A and **58** also adapts the system **10** to handle a plurality of fire-suppressant materials having different particle sizes.

When the valve **52** is moved to a closed position, the suction force of the vaccum system **30** is stopped and the filling operation of the extinguisher **100** is completed. The extinguisher **100** is then removed from the filling station **20.** The filling operation as described above can be repeated to fill additional extinguishers **100,** having a variety of orifice sizes, with any type of material contained within the separate material storage reservoirs **70** A–C. The extinguisher **100** can be filled, in the same manner, with the material from the reservoir **70B** by operation of the control valve **52B,** and by coupling the free ends of the lines **60B** and **78B** with the extinguisher **100.** Likewise, the extinguisher **100** can be filled with the material from the reservoir **70C** by operation of the vacuum control valve **52C,** and by coupling the lines **60C** and **78C** to the extinguisher.

Although the invention has been described above with a certain degree of particularity with respect to several embodiments, it should be understood that this disclosure has been made only by way of example. Consequently, numerous changes in the details of construction and in the combination and arrangement of the components as well as the possible modes of utilization for the extinguisher charging system in accordance with this invention will be apparent to those familiar with the art, and may be resorted to without departing from the scope of the invention.

What is claimed is:

1. A system for vacuum-filling a plurality of types of fire extinguishers having varying physical characteristics and requiring differing types of discrete fire-retardant powdered material comprising:

a filling station for receiving a variety of empty fire extinguishers having varying capacities and an open orifice of differing diameters through which the extinguisher is to be filled;

a vacuum system including a vacuum source;

means providing a plurality of separate sources of different types of discrete fire-retardant material;

a plurality of filling conduits each having one end connectable in fluid communication with the discrete material from one of said sources and having a movable end connectable to the open orifice of the extinguisher to be filled at the filling station;

a plurality of vacuum conduits each having one end connectable to said vacuum source and having a movable end connectable to the open orifice of the extinguisher to be filled at the filling station;

coupling means joining one of said filling conduits to one of said vacuum conduits and adapted to simultaneously connect said coupled conduits with the open orifice of the extinguisher to be filled at said filling station;

sealing means joined to each pair of coupled conduits and adapted to seal each of said differing diameter extinguisher orifices from the surrounding atmosphere when said coupled conduits are secured within the orifice; and

material selection means for coordinating the type and volume of material discharged from said material sources with the type and capacity of the extinguisher at said filling station, said selection means including multiposition control valve means, arranged to provide each pair of coupled conduits with a valve movable to an opened position coupling the connected vacuum conduit to said vacuum source to create a partial vacuum with the extinguisher secured to said coupled conduits and rapidly flow discrete fire-retardant material from a selected one of said sources into said extinguisher through the coupled filling conduit, said valve in each pair of coupled conduits further being movable to a closed position to stop the flow of said selected discrete material through the coupled filling conduit when said extinguisher at said filling station is filled to capacity.

2. A system in accordance with claim **1** wherein said filling station for receiving an empty fire extinguisher includes weighing means so that operation of said system can be controlled to draw a selected weight of discrete fire-retardant material into the extinguisher.

3. A system in accordance with claim **1** wherein said vacuum system includes a sealed vacuum storage tank, pumping means to maintain a selected vacuum pressure within said tank, and a second vacuum conduit coupling said tank to said control valve means so that said tank provides a continuous vacuum force for filling a plurality of extinguishers successively, and further wherein said system includes a particle filter provided in each of said vacuum conduits to prevent discrete fire-retardant material from entering said vacuum storage tank and pumping means.

4. A system in accordance with claim **1** wherein each material source comprises a storage hopper having a downwardly converging floor section defining an outlet port for said material and wherein said filling conduit is coupled to said outlet port.

5. A system in accordance with claim **1** wherein said sealing means comprises a frusto-conical plug having a major base diameter larger than the maximum orifice diameter of said variety of extinguishers and a minor base diameter smaller than the maximum orifice diameter thereof so that said plug is dimensioned to be received within the varying orifices of a plurality of extinguishers, said plug including a bore defining a flow conduit permitting the evacuation of said extinguishers and the flow of fire-retardant material into said extinguishers through said plug, and further including a resilent exterior conical surface which permits the evacuating of an extinguisher through said conduit to draw said exterior surface into secure sealing engagement with the orifice of the extinguisher being vacuum-filled, and coupling means extending through said bore and defining separate parallel passageways to separately connect the movable ends said vacuum and filling conduits in communication with the interior of the extinguisher.

6. A system for vacuum-filling a plurality of types of fire extinguishers having varying physical characteristics and requiring differing types of discrete fire-retardant powdered material comprising:

a filling station for receiving a variety of empty fire extinguishers having varying capacities and an open orifice of differing diameters through which the extinguisher is to be filled;

a vacuum system including a vacuum source;

a plurality of separate reservoirs for housing a supply of different types of discrete fire-retardant material;

a plurality of filling conduits each having one end connectable in fluid communication with the discrete material in one of said reservoirs and having a movable end connectable to the open orifice of the extinguisher to be filled at the filling station;

a plurality of vacuum conduits each having one end connectable to said vacuum source and having a movable end connectable to the open orifice of the extinguisher to be filled at the filling station;

coupling means joining one of said filling conduits to one of said vacuum conduits and adapted to simultaneously connect said coupled conduits with the open orifice of the extinguisher to be filled at said filling station;

sealing means joined to each pair of coupled filling and vacuum conduits and adapted to seal each of said differing diameter extinguisher orifices from the surrounding atmosphere when said coupled pair of conduits is secured within the orifice;

material section means for coordinating the type and volume of material discharged from said reservoirs with the type and capacity of the extinguisher at said filling station, said selection means including a separate multi-position control valve for each of said vacuum conduits, with each valve movable between an opened position coupling the connected vacuum conduit to said vacuum source and creating a vacuum force in said connected vacuum conduit and a closed position which promptly eliminates said vacuum force in said connected vacuum conduit, so that selective movement of one of said control valves from said closed to said opened position with the coupled vacuum and filling conduits secured within a fire extinguisher orifice, draws a partial vacuum within said extinguisher through said vacuum conduit by means of said vacuum force and thereby creates a pressure differential which rapidly draws discrete fire-retardant material from a selected one of said reservoirs into the extinguisher through the coupled filling conduit, and further wherein the selective movement of one of said control valves from said opened position to said closed position promptly stops the flow of said

fire-retardant material through the coupled filling conduit into the extinguisher, when said extinguisher is filled to capacity, and promptly eliminates said vacuum force by venting said coupled filling conduit and said filled extinguisher to atmosphere pressure.

7. A system in accordance with claim **6** including a plurality of filter means provided in said vacuum system adapted to separately filter and collect said discrete material from each of said vacuum conduits and thereby prevent intermixing of said varying types of said material and contamination of said vacuum source.

8. A system for selectively vacuum-filling a plurality of types of fire extinguishers having varying physical characteristics and requiring differing types of discrete fire-retardant material comprising:

a filling station for receiving a variety of empty fire extinguishers having varying capacities and differing open orifice diameters through which the extinguisher is to be filled;

a vacuum system including a vacuum source;

means providing a plurality of separate sources of different types of discrete fire-retardant material;

filling conduit means having one end connectable in fluid communication with the discrete material in one of said material sources and having a movable end;

vacuum conduit means having one end connectable to said vacuum source and having a movable end; with the movable ends of said filling and vacuum conduit means being adapted for simultaneous connection with the open orifice of the extinguisher selected to be filled at said filling station;

sealing means joined to the movable ends of said filling and vacuum conduit means and sealing each of said differing diameter extinguisher orifices from the surrounding atmosphere when said movable ends of said filling and vacuum conduits are secured within the orifice of an extinguisher at the filling station; and

selection means for coordinating the type and volume of discrete fire retardant material to be discharged from said sources with the type and physical characteristics of an extinguisher at said filling station which is selected from a group of extinguishers having differing open orifice diameters, said selection means including valve means coupled to said vacuum conduit means and movable between an opened and a closed position with the movement of said valve means into said opened position creating a partial vacuum in the selected extinguisher at said filling station by coupling said extinguisher to said vacuum source through said vacuum conduit means and charging s selected one of said types of discrete fire-retardant material into said selected extinguisher from a selected material source through said filling conduit means, and with the movement of said valve means into said closed position coordinating the volume of said selected discrete material charged into said selected extinguisher with the capacity and type of extinguisher being filled through said filling conduit means by selectively reducing the partial vacuum within the extinguisher at said filling station and thereby reducing the flow of the selected discrete material from the selected source through said filling conduit means.

9. A system for filling fire extinguishers with discrete fire-retardant material in accordance with claim **8** wherein each of said material sources comprises a material reservoir which is readily charged from supply containers of discrete material including a hopper for receiving said discrete material, support means for said hopper, and pivotal connecting means operatively joining said hopper to said frame to align said hopper with a supply container of said material and pivot said hopper and aligned container together with respect to said frame and thereby charge said material to the hopper from the container.

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